

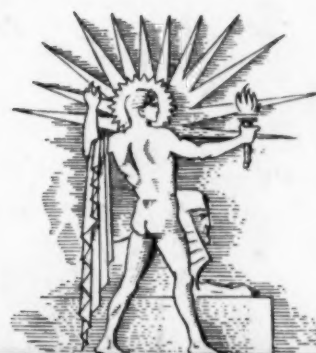
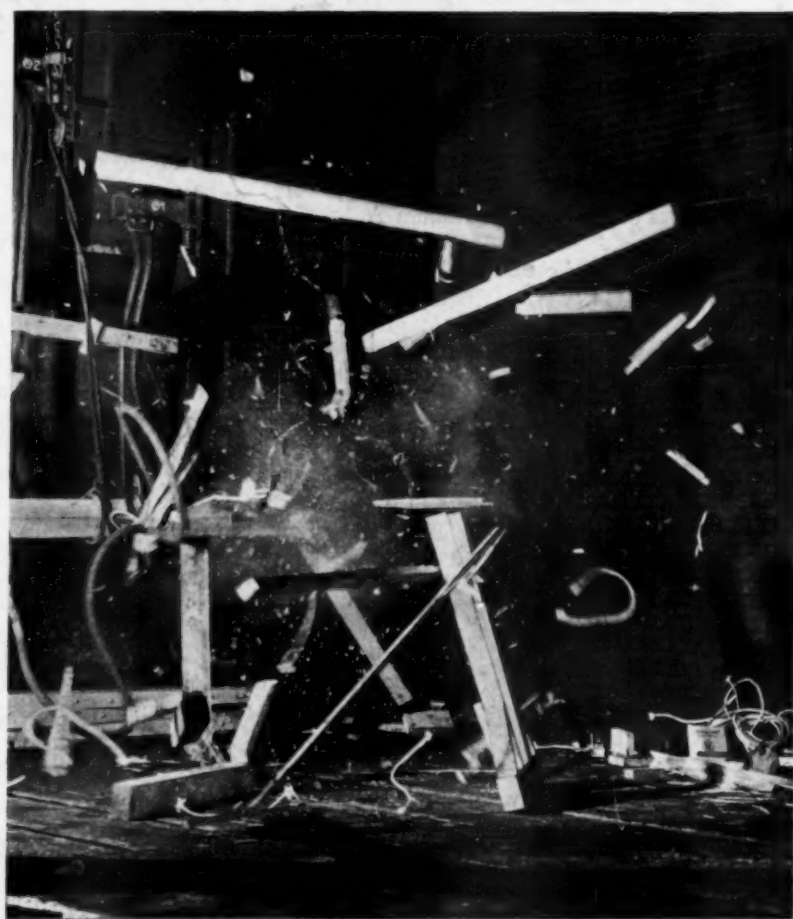
PRICE  
15¢

TECHNOLOGY DEPT.

# SCIENCE NEWS LETTER

PUBLIC LIBRARY  
FEB 2 - 1942  
✓ DETROIT

THE WEEKLY SUMMARY OF CURRENT SCIENCE •



January 31, 1942

Super-Power Protection

See Page 68

A SCIENCE SERVICE PUBLICATION

## Do You Know?

An egg is two-thirds water.

Nylon is an efficient electric insulator.

Fabrics can now be made from cow's milk.

Fish eyes are a delicacy among West Indies natives.

Sea-butterflies are sea snails that swim with wing-like fins.

Perfumes remain fresher on a warm skin than on clothing.

Some cities in the United States have lending "libraries" of toys.

Army motorcycles are being provided with blackout lighting equipment.

A new perfume has been christened "gingham", to be used with gowns of that material.

Oysters are good food the year 'round, according to Dr. Thurlow Nelson, New Jersey State biologist.

After taking off, a flea turns and travels tail-first through the air, thus placing the heavy end foremost.

The stomach of a tiger shark was found to contain 7 leggings, 47 buttons, 3 leather belts and 9 shoes.

There were 13 stars and 13 stripes in our original flag; by coincidence, 13 operations are now necessary in the manufacture of the once handmade stars and stripes.

## QUESTIONS DISCUSSED IN THIS ISSUE

Most articles which appear in SCIENCE NEWS LETTER are based on communications to Science Service, or on papers before meetings. Where published sources are used they are referred to in the article.

### AERONAUTICS

What new invention aids the blind landing of airplanes? p. 72.

### AERONAUTICS—PSYCHOLOGY

How can you train yourself to identify airplanes? p. 70.

### ASTRONOMY

What planet will be brightest in the February skies? p. 74.

### CHEMISTRY

How does rust damage inner tubes? p. 72.

### ENGINEERING

How can our great power lines be protected against sabotage? p. 68.

What savings are provided for in the "Victory" bicycles? p. 72.

### MEDICINE

How can peritonitis be cured? p. 69.

What new method was used to locate speedily metal fragments in the wounds of men injured at Pearl Harbor? p. 67.

### PHYSICS

How can gasoline tanks be made "invisible" from the air? p. 72.

What new device has been invented for making charcoal for gas masks? p. 67.

### PHYSIOLOGY

What is the status of the vitamins-for-gray-hair research? p. 68.

What psychological barrier can keep a woman from becoming a mother? p. 73.

### PUBLIC HEALTH

Where can you take a college course in outdoor living? p. 73.

### RESOURCES

Where in the United States can 25,000 tons of wild rubber be harvested? p. 69.

Tangerines are a source of vitamin A.

Rayon has replaced cotton cords in airliner tires.

Emotional upsets use energy as rapidly as hard work.

The blue crab of Chesapeake Bay lays 1,750,000 eggs at a time.

This country has more high-speed passenger trains than any other.

A year's oyster harvest in the United States has a food value equal to 400,000 dressed steers.

Architects predict cities of the future will be protected against air raids with public shelters built as dormitories.

Sugar maple and oak have about the greatest heating value as fuel woods.

Popcorn with a louder "pop" has been developed by the U. S. Department of Agriculture and Purdue University.

The Nassau grouper, a food fish found in West Indian waters, can change colors like a chameleon—at least eight are recorded.

A forest ranger reported he kept deer out of his vegetable garden with moth balls—the odor was too strong for sensitive nostrils.

Mindanao Deep, west of the Philippine island of the same name, is the deepest known depression in the ocean—almost 6½ miles.

## SCIENCE NEWS LETTER

Vol. 41 JANUARY 31, 1942 No. 5

The Weekly Summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc., 1719 N St., N. W., Washington, D. C. Edited by WATSON DAVIS.

Subscriptions—\$5.00 a year; two years, \$7.00; 15 cents a copy. Ten or more copies to same address, 5 cents a copy. Back numbers more than six months old, 25 cents.

In requesting change of address, please give your old address as well as the new one, at least two weeks before change is to become effective.

Copyright, 1942, by Science Service, Inc. Reproduction of any portion of SCIENCE NEWS LETTER is strictly prohibited. Newspapers, magazines and other publications are invited to avail themselves of the numerous syndicate services issued by Science Service.

Cable address: Scienserve, Washington.

Entered as second class matter at the post-office at Washington, D. C., under the Act of

March 3, 1879. Established in mimeographed form March 18, 1922. Title registered as trademark, U. S. and Canadian Patent Offices. Indexed in Readers' Guide to Periodical Literature, Abridged Guide, and in the Engineering Index.

The Science Observer, established by the American Institute of the City of New York, is now included in the SCIENCE NEWS LETTER.

The New York Museum of Science and Industry has elected SCIENCE NEWS LETTER as its official publication to be received by its members.

Advertising rates on application. Member Audit Bureau of Circulation.

SCIENCE SERVICE is the Institution for the Popularization of Science organized 1921 as a non-profit corporation.

Board of Trustees—Nominated by the American Association for the Advancement of Science: Henry B. Ward, University of Illinois; Edwin G. Conklin, American Philosophical Society; J. McKeen Cattell, Editor, Science. Nominated by the National Academy of Sciences: R. A. Millikan, California Institute of Technology; Harlow Shapley, Harvard College Observatory; William H. Howell, Johns Hopkins University. Nomi-

nated by the National Research Council: Ross G. Harrison, Yale University; C. G. Abbot, Secretary, Smithsonian Institution; Harrison E. Howe, Editor, Industrial and Engineering Chemistry. Nominated by the Journalistic Profession: O. W. Riegel, Washington and Lee School of Journalism; A. H. Kirchhofer, Buffalo Evening News; Neil H. Swanson, Executive Editor, Sun Papers. Nominated by the E. W. Scripps Estate: Frank R. Ford, Evansville Press; Warren S. Thompson, Miami University, Oxford, Ohio; Harry L. Smithton, Cincinnati, Ohio.

Officers—Honorary President: William E. Ritter. President: Edwin G. Conklin. Vice-President and Chairman of Executive Committee: Harlow Shapley. Treasurer: O. W. Riegel. Secretary: Watson Davis.

Staff—Director: Watson Davis. Writers: Frank Thone, Jane Stafford, Marjorie Van de Water, Morton Mott-Smith, Edwin Neff. Science Clubs of America: Joseph H. Kraus, Margaret E. Patterson. Photography: Fremont Davis. Librarian: Minna Gill. Business Manager: Alvin C. Stewart. Sales and Advertising: Hallie Jenkins, Austin Winant. Correspondents in principal cities and centers of research.

## MEDICINE

# New Detector Locates Metal Fragments In War Wounds

**Radio Frequency Circuit With Movable Coil Enclosed In Steel Finger Used With Success at Pearl Harbor**

**P**IECES of metal may now be removed from war casualties and victims of accidents with unprecedented facility and speed. The old method using probes and X-rays often takes one or more hours compared to the new record of a few minutes.

The revolutionary technique is based on the use of an instrument known as the Moorhead Foreign-Body Finder. By means of this guide surgeons may definitely locate bits of steel or other metals easily and quickly. The instrument was designed by Col. John J. Moorhead of the U. S. Army, professor of traumatic surgery at the Army Post Graduate School in New York City. It was used for the first time in Tripler Hospital, Schofield Barracks, after the Japanese raid at Pearl Harbor, Dec. 7.

On the morning of the attack Col. Moorhead—a visitor in Honolulu—was lecturing to a group of physicians. When the call came for medical help he accompanied the doctors to the army hospital. Col. Moorhead's instrument was used successfully that day to locate fragments in 20 cases and in many more to prove the absence of any imbedded metal.

Col. Moorhead has made a study for years of the methods of detecting foreign bodies in tissues and wounds. He served for two years in France during World War I and was decorated for excellence in war surgery. He felt that there was a definite need for better means of locating embedded metal fragments. His foreign-body finder was designed to fill that need.

The finder consists of a radio frequency circuit mounted in a box, with a movable coil or capacity attached by a wire and inclosed in a steel finger. The steel finger—about one-half inch in diameter and about 12 inches long—is water-tight and the wire to which it is connected is covered with rubber so that they may be detached and sterilized by boiling.

As the indicator approaches a piece of metal there is a deflection on a

millimeter. One knob of the instrument adjusts for iron fragments and another for other metals.

In use the indicator is passed above or around the wound in two planes at right angles to each other. At the points of greatest deflection marks are made on the flesh. The projection of these points indicates the position of the metal fragment. If this is not sufficient the indicator may be introduced directly into the wound, even in lung, brain, or abdomen.

Col. Moorhead's instrument has many advantages over the old method using X-rays. It cuts the time needed to remove the fragments to a mere fraction of that formerly required. This is not only a great boon to the individual pa-

tient but in times of disaster allows the surgeons to treat many cases within the first six hours known as the "golden period" of surgery. The instrument is cheap to construct and operate and constitutes an enormous saving over that of the ordinary X-ray outfit, perhaps a hundred dollars or so compared to five to ten thousand. The machine is easily portable. The box is about one by one by two feet and weighs approximately ten pounds.

Dr. F. J. Halford, Honolulu surgeon who worked with Dr. Moorhead on Dec. 7, says:

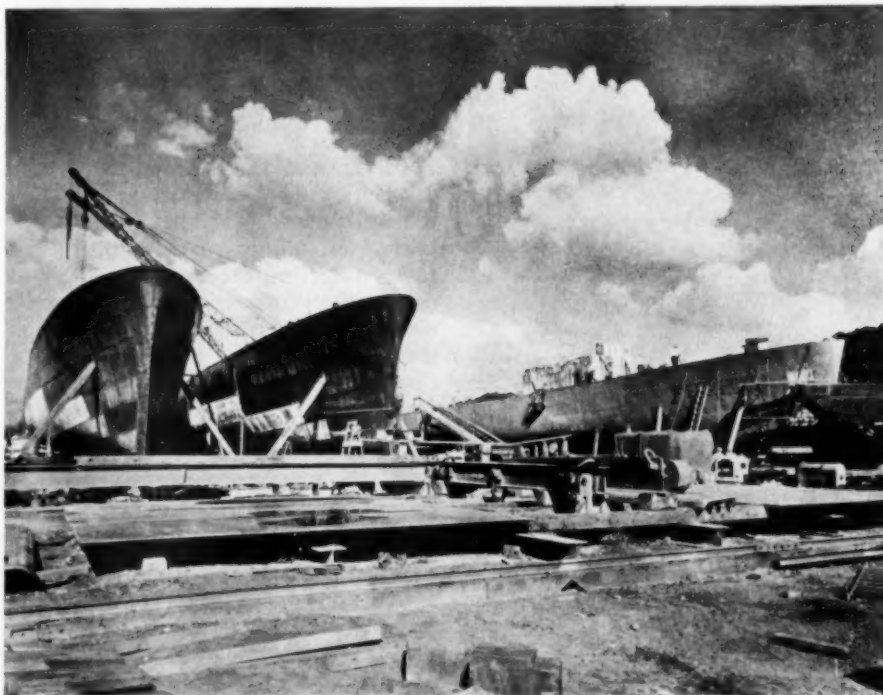
"The Moorhead Finder will probably equal or supersede the X-ray in this type of work not only in emergencies but under the best conditions."

*Science News Letter, January 31, 1942*

## PHYSICS

## Officer Invents Furnace For Gas Mask Charcoal

**A**N electric furnace for preparing activated charcoal, such as is used in gas masks, has been invented by Col. Maurice E. Barker of the Army's chem-



### TO CHASE SUBMARINES

Production line methods have been applied to the construction of submarine chasers at Pittsburgh, Pa., where a number of the Diesel-powered vessels are being constructed by the Dravo Corporation. These craft are built in sets of three, upside down and in three sections. When the hulls are completed, the vessels are righted as shown and placed on the ways. The photograph is used through the courtesy of the Lincoln Electric Company.



ical warfare service. In applying for his patent (No. 2,270,245), Col. Barker specifies that his invention may be used by the United States government without payment of royalty.

The furnace heats the charcoal to a temperature of about 1,000 degrees Centigrade, at the same time keeping it stirred, while a mixture of carbon dioxide and steam, with a small amount of oxygen, is passed through the mass. This renders the charcoal highly adsorbent to poison gases and other impurities.

Activated charcoal for gas masks is a development dating since World War I. At that time, natural charcoals prepared from coconut shells, prune pits and other hard-to-obtain sources were the only adsorbents suitable for gas-mask use. This special treatment of ordinary charcoal has made the manufacture of gas masks simpler and less expensive.

*Science News Letter, January 31, 1942*

American golden-eye ducks can remain under water as long as 55 seconds.



#### WAR FASHION

Eskimos and United States soldiers on Far Northern duty have no monopoly on the snug invention of the parka—hood and coat in one. Here is how it looks, as streamlined and designed for America's farm women. The new cold-weather outfit, creation of Miss Clarice Scott, of the U. S. Bureau of Home Economics, resulted from a visit by Miss Scott to the Quartermaster Corps' sample clothing room in Washington in the company of a Science Service representative.

#### ENGINEERING

## Super-Power Test Laboratory Guards Our Electric Plants

### Short Circuit Such As Might Be Produced by Saboteur Rendered Harmless in Demonstration For Officers

See Front Cover

**E**LECTRICAL knockout blows of 2,000,000 kilowatts, equal to twice the power generated at any instant at Niagara Falls, were delivered, and rendered harmless by improved protective devices, at the first public demonstration of Westinghouse's new super-power testing laboratory, most powerful of its kind in the world.

In demonstrations before Army and Navy Officers, these knockout blows duplicated the effects of a short circuit such as could be caused by a bar of steel thrown across the electric circuits in a power station by a saboteur, the severance of a power line so that it would fall to the ground, explosives planted on the ground, or an aerial bomb.

The torrent of power suddenly released produced flaming arcs 20 feet in length, exploded old-time safety fuses with detonations as loud as shellfire, and shattered six-inch timbers into kindling.

But a new 12-foot-tall improved oil circuit-breaker snuffed out the arc in a twentieth of a second and by-passed the current into a chamber where it was choked off with magnetic plates. Applied to a power line, the circuit-breaker cuts out a short-circuited section, allowing the remainder of the system to function normally.

In another demonstration, a compressed-air circuit-breaker blew out a 1,500,000-kilowatt arc in a hundredth of a second.

In a room-sized refrigerator, where temperatures 20 degrees below zero can be maintained, an outdoor power switch, encrusted with frost and dangling with icicles, was tested. At 120,000 volts the current flashed over the four-foot-high porcelain insulators with a blinding light and a thundering crash.

Experiments like this indicate how much insulation a winter-proof switch must have.

The photograph on the cover of this week's SCIENCE NEWS LETTER shows still another demonstration in which 1,500,000 kilowatts were sent through three copper cables sandwiched lengthwise between six-inch timbers and the whole bound together by stout ropes. The ropes were snapped and the timbers blown apart and shattered into kindling wood by the magnetic forces of the discharge.

The power for the 2,000,000 kilowatt flash was built up gradually by two 500-ton generators and then released suddenly in a maximum time of five seconds. This power, which is equivalent to 2,680,000 horsepower, if it could be delivered continuously, would light enough fluorescent lamps to girdle the earth twice at the equator. The sudden release of this energy caused the generators to recoil like guns. Special spring mountings took up the shock to prevent injury to the foundations.

*Science News Letter, January 31, 1942*

#### PHYSIOLOGY

## Scientists Still Uncertain Whether Vitamins Darken Hair

**M**EDICAL scientists and nutritionists are still uncertain whether vitamins will darken gray hair, and if so, which vitamin is the true anti-gray hair remedy, it appears from a summary of the situation in the *Journal of the American Medical Association* (Jan. 24).

Para-aminobenzoic acid darkened gray hair in adults in all cases reported by Dr. B. F. Sieve, of Boston. Similar results previously obtained in laboratory animals furnished the basis for these clinical trials.

"Confirmatory reports (of the clinical

work) by qualified investigators have not yet appeared," states the Journal.

Most investigators have been unable to verify the observation of a relation between para-aminobenzoic acid and graying of hair in animals, continues the editorial comment.

Lack of a different vitamin, pantothenic acid, causes graying in animals which can be cured by doses of this vitamin but not of para-aminobenzoic acid, according to reports from two different groups of scientists.

Not all persons with gray hair are necessarily suffering from lack of vitamins, it is pointed out. If large amounts of para-aminobenzoic acid darken their gray hair, it might be due to excretion into the hair of some para-phenylenedi-

amine-like compound which acts like a dye, it is suggested.

The evidence is stronger for pantothenic acid being the anti-gray hair vitamin, if there is such a vitamin, than for para-aminobenzoic acid, in the opinion of the writer of the Journal's editorial.

Further knowledge of the effect of the latter chemical on the body should be gained, the editorial states, before relatively large amounts of it are given to patients over comparatively long periods of time. Further studies on laboratory animals of these substances present in yeast which might be related to the gray hair-diet problem are suggested before further experiments are undertaken on humans.

*Science News Letter, January 31, 1942*

#### RESOURCES

## 25,000 Tons of Wild Rubber Await Harvest in Wastelands

### Rabbit Brush, Weed That Grows Thick on Alkali Flats Of the West, Hides Rich Supply in Stems and Roots

**M**ORE than 25,000 tons of wild rubber are hidden in the stems and roots of rabbit brush, a weed that grows thick on alkali flats and other wastelands of the West, declares Prof. T. Harper Goodspeed, University of California botanist. He has called attention to this unutilized resource in messages to the federal government and to the governor of California.

Rabbit brush is a shrub, whose various species grow from knee-high to twice the height of a man. Its rubber occurs in the form of solid bits and shreds embedded in the tissues, as it does in its better known botanical relative, guayule. Hence, the same methods of harvesting and processing could be used that have been successful in extracting guayule rubber.

It is not claimed that rabbit-brush rubber could compete with the East Indian product under normal conditions. It is not quite so high in quality, and it costs more to prepare; Prof. Goodspeed estimates about 45 cents a pound. However, in the present emergency it might be worth while despite relatively high costs.

Estimates of the amount of rabbit-brush rubber that might be eventually

harvested range all the way from a low of 10,000 tons to an extreme high of 250,000 tons. Certainly the 16 major species of the shrub cover an immense area, from southern California to the northern Rockies. Some of them grow on alkali lands completely useless for any other purpose. Others have moved in as weeds on rangelands that have been seriously over-grazed.

Most practicable harvesting method, probably, would be to pull the plants up by the roots, using teams or tractors. This is because a considerable part of the rubber is embedded in the roots. The same uprooting process would serve to clear the range, permitting native grasses to grow again and thereby prepare the way for increasing another war resource, the meat and leather supply. Along with the rabbit brush, several other related rubber-containing weeds could be uprooted and processed, notably two genera known as *Acraderica* and *Aplopappus*.

The rubber of the rabbit brush is known as chrysil rubber, the name being derived from the plant's botanical title, *Chrysothamnus*. This comes from two Greek words, meaning "golden bush." The name is well bestowed, for when

it is in bloom every twig on the plant ends with a brush of beautiful, golden-rod-like flowers. Like guayule, rabbit brush is a member of the composite family, which includes goldenrods, dandelions, asters, sunflowers and the sinful, sneeze-causing ragweeds.

*Science News Letter, January 31, 1942*

#### MEDICINE

### New Method of Using Sulfa Drug Cures Peritonitis

**A** NEW method of using a sulfa drug to save patients suffering from dangerous peritonitis is reported by Dr. Julius Gottesman and Dr. Harold Goldberg, of Sydenham Hospital, New York City (*Journal of American Medical Association*, Jan. 24).

The method consists of injecting the drug into the abdomen. Sulfa drugs have been put directly into the abdomen when it is opened at surgical operation or in war wounds, but this is believed to be the first time a sulfa drug has been injected into the abdomen when there was no wound.

The patient given this new type of treatment was a two and one-half-year-old Negro child suffering from acute appendicitis with generalized peritonitis. Because of the child's condition, the doctors did not believe removal of the appendix was advisable. On the tenth day of the child's illness, the abdomen was punctured with a long needle something like a hypodermic needle and about half a pint of pus was withdrawn. Sulfathiazole was then injected through this aspirating needle. A second injection was made two days later, and the child was also given injections of sulfathiazole into the veins as well as other treatment.

Two days after the second injection of sulfathiazole into the abdomen the child's temperature fell to normal and its general condition showed definite improvement. Within three weeks the child had recovered from the serious infection and was able to go home. Two months later another attack of acute appendicitis occurred and at that time the appendix was removed.

The method of injecting the sulfa drug directly into the abdomen could be of value not only in peritonitis from appendicitis, the New York doctors suggest, but also in peritonitis due to pneumonia germs, gonorrhea, or streptococci.

*Science News Letter, January 31, 1942*

The world's largest sponge market is at Tarpon Springs, Florida.

AERONAUTICS—PSYCHOLOGY

# How To Spot Airplanes

## Official Silhouettes Showing German, Japanese, British And American Planes Will Aid in Distinguishing Them

By MARJORIE VAN DE WATER

**T**HOUSANDS of lives may depend, some day, on your being able to spot airplanes in the distant sky and know friend from foe.

It is not too soon to train yourself now to tell bomber from training plane, scout-ing plane from airliner. U. S. or British plane from German and Japanese.

Aviation-minded America nevertheless still finds it difficult to know one airplane from another when they are flying at high altitudes and are viewed from the ground.

The secret lies in a training course in observation which you can give yourself, following these hints of psychologists:

1. Watch airplanes constantly under all sorts of conditions. Go to an airport if you can and watch the airliners taking off. Watch them as they fade into the distant sky. Notice what details fade from sight first, which are visible longest. Wear dark glasses, or polaroid glasses if you can, to shield your eyes from the painful glare of the sun.

2. Watch airplanes at night and in the dusk of early evening and dawn.

3. Few people are able to memorize the entire looks of a plane as you would a friend's face, or to distinguish one plane from a closely similar model in this way. Instead, look for details of construction. I will list a few of these for you in this article. You can add to the list yourself.

### Make It a Game

4. Start games with other airplane identification fans. Play them as tourists play automobile poker. Allow ten points for each of the distinguishing features listed below. The player first noting wing location, tail features, number of motors, and so on adds ten points to his score.

5. In England little groups of airplane spotters are getting together in clubs to follow this field as a new fascinating hobby. That the ability of every man, woman and child in England to be able to tell friendly airplane from foe is extremely important to the safety of the whole nation adds a particular thrill to the sport of this new skill. Here is a new

field for your own local Science Club or Aviation Club.

6. Study silhouettes. The view you get of an airplane when you see it against the back-drop of a bright sky is not at all like what you see when the plane is on the ground and the sun shining down on it from above. For that reason the black silhouettes which nevertheless give a three-dimensional effect are particularly helpful in learning to spot planes in flight. They are better for this purpose than photographs which show numbers, insignia, and so on seldom distinguishable in the air. They are also better than another type of silhouette commonly used which has a flat, paperdoll effect. Get hold of all the silhouettes you can for study. A book of British, German and American silhouettes is available in handy pocket size for you to take along on field trips. It is "Aircraft Recognition," a Penguin Book by R. A. Saville-Sneath. Another will be published soon containing Japanese silhouettes, and the latest American and German models. Watch newspaper pictures and movies.

Here are some of the features for you to look for in studying the silhouettes and airplanes.

*Number of wings.* By far the largest

number of airplanes you are likely to see are single-wing, or monoplanes. If you observe, therefore, that a particular plane is a biplane, you have immensely simplified identification. The Japanese use a biplane as a dive bomber similar to the British "Albacore" which has taken part in many raids on invasion ports and coastal airdromes. Both can presumably be used from aircraft carriers. Most obvious differences between friend and foe in this case are: glassed in cockpits on "Albacore"; distance that the fuselage projects forward of wings on "Albacore"; and relatively stubby fuselage of Jap plane. British plane has "trouser" legs but wheels without spats. The Japanese dive bomber has spats but no trousers. These terms refer to coverings for streamlining.

*Land or water?* One of the easiest observations to make on a distant plane is probably to determine whether it is a flying boat, seaplane with floats or pontoons, or whether it is a land plane.

*Number of motors.* Three- and four-motor planes are relatively uncommon. Note these or whether a single motor or twin-motor job.

*Type of motor.* A stream-lined effect on the motor generally means a liquid-cooled engine. The radial motor has a snub-nosed appearance. Modern designs, however, include exceptions to this general rule.



YOU KNOW THIS ONE

Most familiar in the air over the United States is this air liner, the Douglas D.C. 3. Compare this photograph with the silhouettes of similar airplanes shown on the facing page.





### MODIFICATIONS

The silhouettes at the left are of the Japanese heavy bomber 97, which is probably a militarized copy of the D.C. 3 shown on the facing page. Our own Douglas "Boston" (right) is made by the same company as the D.C. 3, but is the militarized version of the D.C. 5. Note the engine nacelles projecting back of the wings, underslung motors, shoulder position of the wings and very marked dihedral of the tail plane. These features distinguish it from the other two twin-engine planes. All the silhouettes of Japanese planes used with this article are official photographs of the U. S. Army Air Corps. Those of the "Boston" are from R. A. Saville-Sneath's book "Aircraft Recognition" (Penguin Books).

**Shape of wing.** Wing shape can be seen in the straight overhead view and in the "plan" view of the silhouettes. Notice whether the wing has little or no taper, moderate taper, or full taper; whether taper is on leading edge only, trailing edge only, both edges, or whether wings are elliptical. Notice also the tips of the wings — whether rounded, pointed, or square cut.

**Position of wing.** In a monoplane, the height of the wings with reference to the fuselage is important for identification. In the parasol high-wing type, the wing is well above the body and is attached to it by struts. The shoulder high-wing type has wings attached at the "shoulder" of the fuselage. The Japanese flying boat is of parasol high-wing type. All others shown are of the low-wing or midwing type, in which the wings are attached to fuselage in the positions indicated by the names.

**Wing dihedral.** The head-on or tail view of a plane or silhouette shows the tilt, the angle at which the wings are attached to the fuselage, known as the dihedral. With little or no dihedral, the wings form a flat or straight line. Other classifications are moderate dihedral, in which the wings tilt upward like the raised wings of a bird in flight. Some-

times a plane has a combination of no dihedral in the center section with full dihedral only in the extreme outer section near the wing tips.

The gull wing has full dihedral in the center section with no dihedral in the rest of the wings. The inverted gull wing has "anhedral," or a droop, in the center section and then an upward lift in the outer sections of the wings.

**Wing span and aspect ratio.** The length of the wings and the proportion of length to width are very difficult to observe from the ground.

**Tail.** The tail is, in airplane spotting, what the radiator is in automobile identification. On a European plane, it is almost like the designer's signature, so distinctive is the work of each maker. Note first whether the tail is simple, with single fin and rudder, or compound with twin fins and rudders. In the compound unit, note the position of fin and rudder on the tailplane. Are they above it, below it, or midway? How far out from the fuselage? You will notice, that with a few exceptions, compound tail units occur on planes with more than one motor.

Identification of German planes is much easier than is telling Japanese planes from either German models or American planes. This is because so many Japanese

airplanes are frank copies of well-known German designs and our own. There is also the possibility that the Japanese are actually using German airplanes and the American planes bought from us during 1938 and 1939. These could easily be converted for war use.

If you are on the West Coast, therefore, train yourself to notice all the small details you can possibly detect in flight with a view to distinguishing between, say, the Douglas D.C. 2 or D.C. 3, familiar air liners, and a clever copy or adaptation of this type.

If you are on the East coast, strain your eyes for a flying boat of this description: Monoplane with high wing, braced. No wheels or floats—a boat. Two in-line engines, but easily mistaken for a single engine boat because motors are mounted in tandem. Uniformly tapered wings with rounded tips, have no dihedral. Simple tail. Unusual distinguishing characteristics are the lateral sponsons, or stub wings, built into the hull to serve as water stabilizers in place of wing floats.

If the East Coast is ever attacked by a German bomber, it may very well be by a military version of this Dornier 18, which made the first crossing of the North Atlantic ever made by a regular passenger flying boat. It was (Turn to page 76)



### MODERN JAP BOAT

This Japanese flying boat "Type 97" is a four-motor high-wing monoplane designed in 1937. In many ways it looks like the flying boats built in America by Consolidated. Note, however, the wing floats which distinguish it from Consolidated's long-distance bomber the "Catalina" and also from the German Dornier Do 18.

The very high tail is also distinctive.

## CHEMISTRY

**Rust Causes Decomposition Of Auto Inner Tubes**

**R**UST which forms on steel auto rims may cause the inner tube to disintegrate, warns Dr. G. Ross Robertson, associate professor of chemistry at the University of California at Los Angeles.

Dr. Robertson pointed out that tubes now last longer than they used to because they are chemically protected against decomposition. However, iron rust next to the tube may still cause trouble.

"In the present emergency," said Dr. Robertson, "motorists would do well to inspect the center of the steel rim, where a line of rust may form adjacent to the inner tube.

"It would be good strategy with older cars to remove all tires, clean and treat the insides of rims with a suitable rust-resistant paint and to give an appropriate dust or powder treatment to the tubes. And this often gives the opportunity to shift tires around to other wheels for balancing their wear."

*Science News Letter, January 31, 1942*

## AERONAUTICS

**Blind Landing of Planes Facilitated by Invention**

**B**LIND LANDING of airplanes is facilitated by a new invention using a low-power low-frequency transmitter, economical in the use of power, and of no aid to enemy planes not equipped with the receiving device.

The inventor, William Lee Clemmer of Monroe, Wisconsin, has been granted U. S. Patent 2,269,437.

The invention enables an aviator to fly into the neighborhood of a landing field at a safe high altitude, say 6,000 feet, and then spiral down until he has reached an altitude from which he can glide onto the field at a safe gliding angle. This, the device makes possible by indicating continuously on the instrument board the angle between the direction of the transmitter and the horizontal.

The accuracy of the instrument is indicated by the fact that at a distance of one-half mile from a transmitter of six watts output on 375 kilocycles, this angle was measured to an accuracy of one-sixth of a degree.

The low-power low-frequency transmitter produces an "induction field" in the immediate vicinity of the antenna.

This is a static field that surrounds the antenna equally in all directions (i.e. not a beam) and stays with it, very little energy being radiated away in the form of waves. Since the intensity decreases rapidly with the distance, it extends, to a measurable degree, only a few miles. It is not subject to the freakish reflections and disturbances of high-frequency radiation.

The pick-up on the plane is actuated only by the inductive effect of this field, not by radio waves. It does not interfere with the use of a high-frequency beam or other means for guiding the aviator to the vicinity of the field, but helps him to land from a high altitude as in a valley between high mountain ranges.

*Science News Letter, January 31, 1942*

## ENGINEERING

**New "Victory" Bikes To Be Ready April 1**

**F**AR-SIGHTED adults have only a short time to order the new lightweight "Victory" bicycles developed by the Office of Production Management, before it was dissolved, in cooperation with the nation's twelve manufacturers.

The new bikes, stripped of gadgets and essential war metals, will go into limited production April 1. About 750,000 will be put on the market. Last year's bicycle total was 1,800,000. So far, 50,000 to 70,000 individual orders for the "Victory" bikes have already been placed. Prices range from \$30 to \$35.

War Production Board officials stress the new bicycles are designed for adults, not children. They are somewhat larger than the old bicycle, although weight is about 20 pounds less. The new bikes resemble English lightweight models which sold for close to \$100 in this country.

"Victory" bicycles are the result of conferences between specialists of the old Office of Production Management and manufacturers. All types of U. S.-made bicycles were studied, part by part, and standards set for parts containing the least war-needed materials. Finally, parts were designed which contain no copper, nickel or other vital materials.

Steel content was reduced by one-half. Tires are 90% reclaimed rubber, 10% crude rubber. Handlebar grips and pedals no longer are rubber, may be wood. There will be no handlebar baskets or compartments, no gadgets.

Manufacturers point out, however, that "Victory" bicycles will be lighter, faster and easier to ride.

*Science News Letter, January 31, 1942*

**IN SCIENCE**

## PHYSICS

**Low Visibility Paint Hides Tanks From Air**

**T**ANKS for the storage of gasoline and other volatile liquids, refineries and other vital structures can be made almost invisible to approaching enemy bombers by a new type of low visibility paint, it was announced by Paul L. Hexter, vice president of the Arco Company.

The new paint, although dark in color, has heat deflecting qualities approaching those of aluminum paint, hitherto widely used for keeping oil storage tanks cool, but now unsuitable because it makes these tanks shining targets that can be seen for many miles.

To blend with the surroundings or for camouflage, the tanks can be painted green, tan, black or four intermediate shades. Already in use by the Government, the paint meets Navy specifications for infra-red reflecting powers.

*Science News Letter, January 31, 1942*

## MEDICINE

**X-Rays Cure Most Cases of Acne**

**X**-RAYS lead all methods of treating acne, Dr. R. C. Jamieson, of Detroit, told the American Academy of Dermatology and Syphilology.

He reported that cures range from 85% to 90%, following X-ray treatment. Dr. Jamieson warned, however, that X-rays should be administered only by experts.

"Best results," he said, "are obtained by using X-rays during the latter part of the adolescent stage rather than at the beginning."

Dr. Jamieson also described the use of sulfanilamide in this disease, saying that "... patients having large pustular lesions are especially benefited by drugs in this group, as pus formations are more readily controlled by these drugs."

As an aid to treatment, Dr. Jamieson advised elimination of rich foods such as chocolate from the diet. Excessive use of soap, he added, stimulates rather than diminishes the oil secretion of the skin. Use of soaps should be limited to once or twice daily by acne patients, and all soaps should be of the mild, toilet variety.

*Science News Letter, January 31, 1942*



# NE FIELDS

## PUBLIC HEALTH

### Lamps for Disinfecting To Get A.M.A. Approval

**U**LTRAVIOLET lamps to be used for disinfecting the air in hospitals, nurseries and operating rooms will, if they meet with certain requirements, be given the approval of the American Medical Association, it is announced.

The use of ultraviolet light for disinfecting the air in industrial plants, barracks, school rooms, assembly halls, refrigerators and so on is considered outside the province of the A.M.A., so lamps destined for such use will, apparently, not be considered for acceptance at present.

The same applies to use of ultraviolet light for disinfection of solid objects, such as drinking cups, combs, brushes, shaving utensils, shoes, and toilet seats. Ultraviolet light is considered by A.M.A. authorities an "uncertain means" of sterilizing such objects.

A direct hit on the germs by the ultraviolet light is necessary to kill the germs, it is pointed out in this connection. This would be difficult to accomplish on the edge of a drinking cup. Germ-killing ultraviolet rays, moreover, do not penetrate easily, so that fingermarks or other contamination might absorb enough of them to prevent complete sterilization of dishes and the like.

Requirements which ultraviolet lamps for sterilizing air in hospitals and nurseries must meet to gain A.M.A. acceptance appear in the *A.M.A. Journal* (Jan. 24).

*Science News Letter, January 31, 1942*

## PUBLIC HEALTH

### Living Outdoors To Be Taught in New Course

**I**F AMERICANS are ever bombed out or otherwise driven from their homes, there is no need for them to suffer as Europeans all the way from Norway to Greece have suffered, Prof. E. L. Palmer of Cornell University feels. He is therefore offering a new course of study specifically designed for the war emergency, to train leaders in the art of living out of doors in any kind of weather and

with a minimum of personal discomfort.

Dr. Palmer states: "The course is primarily to develop leadership in order to provide for the health, comfort, and safety of the population in times of stress if forced to live under adverse conditions resulting from possible destruction of homes through air raids or similar war-time disasters."

The subject matter deals directly with the practical problems of shelter, warmth, and food at times when the individual is faced with the barest living essentials. Evacuees from the towns of France, Spain, Russia, and England have been confronted with similar problems numberless times in recent years. It is not wholly conjectural that bombings and disruption of transportation would place similar conditions on parts of this nation.

Map reading, the use of the compass, value of wild plants as food, weather predictions, and similar aspects of outdoor living will be included.

The work will be presented out of doors for three hours one afternoon each week throughout the spring term. Also required will be several over-night trips under winter conditions without the use of permanent shelters and without regard for prevailing weather conditions.

*Science News Letter, January 31, 1942*

## ENGINEERING

### Rubber Tread For Tractor Makes It More Comfortable

**R**EPLACING the clanking steel of the tractor tread with rubber not only reduces noise and vibration, but makes for quick and smooth transportation along the highway when that becomes necessary, and saves gas.

This was pointed out in a paper presented at the meeting of the Society of Automotive Engineers by Robert Mayme and H. W. Delzell of the B. F. Goodrich Company. Development of the rubber track, he said, was started about ten years ago by C. W. Leguillon, manager of the Machine Development Department of the Company.

Three types of rubber treads were discussed. The first is called a "continuous band track" because it is made in a single continuous piece. This type is light and particularly suitable for high speed operation.

In another type the steel treads are replaced by separate rubber blocks. This is for heavier duty and less speed.

A third inexpensive type, still in the experimental stage, is particularly designed for farms and industrial use.

*Science News Letter, January 31, 1942*

## PSYCHOLOGY

### Once Childless Couple Have Own Baby After Adopting

**A**N AMAZING story of how a childless couple were finally able to have a child of their own after they had decided to adopt a baby is told by Dr. Douglass W. Orr of the Menninger Clinic, Topeka, Kans. (*Psychosomatic Medicine*, October).

Such happenings are not new, but Dr. Orr suggests that this case is unique because the wife's pregnancy appears also to have been affected by her decision to give up her job. "This decision," Dr. Orr writes, "enabled her . . . to turn toward and accept her basic femininity."

Not infrequently a childless wife becomes pregnant some time after adopting a child. Some psychologists believe the supposed "sterility" was really caused by an unconscious opposition to childbearing. This opposition disappears with the adoption and rearing of a child. Deep psychological barriers are lowered, and the machinery of pregnancy is enabled to function.

Dr. Orr's case is somewhat different. Here the wife recalls "that even while talking to social workers at the child placement agency she expressed the hope that she might become pregnant later . . . she even joked . . . about other couples who had adopted a baby and then had a child of their own."

The wife's apparent previous inability to bear a child was traced by psychoanalysis to her own childhood. Her father had wanted a boy. To grant this wish as far as possible, the mother brought her daughter up to be tomboy. She was made to wear tailored clothes, her boyish figure was praised, and she was encouraged to express her athletic abilities.

Because of this, Dr. Orr continues, the young girl came to believe "she could not have a child because she was not enough like a woman, and she had no confidence that she could care for a child if she were to have one."

This state of mind carried over into married life because her husband encouraged her to work. To her this meant "you must go on being like a man."

This belief that she was too masculine, the psychoanalysis indicated, kept her from becoming pregnant.

However, when husband and wife decided to adopt a child, she was encouraged by her husband to stop work. Her resignation, Dr. Orr concludes, "enabled her better than ever before to turn toward and accept her basic femininity."

*Science News Letter, January 31, 1942*

ASTRONOMY

# Jupiter Now Brightest

## Mars and Saturn Will Also Shine in Evening Skies Of February, But Venus Is Lost in Sun's Glare

By JAMES STOKLEY

**I**N THESE difficult times, surrounded by a war-torn world, one feels a sense of refreshment as he turns to the heavens, regarding the skies not for possible bombers, but to behold the stars and planets. Entirely oblivious of man's efforts to destroy himself, these bodies continue on their majestic courses. Yes, they prove to us that law and order still reign in the universe, and inspire us to our task of insuring that these principles shall control here on earth as well.

During recent months we have been watching the planets with interest. Their act is closing, but we still have Mars, Jupiter and Saturn with us in the evening. Venus, until lately the brilliant evening star, is between earth and sun on February 2, lost in the solar glare. But it then moves to the west of the sun, rising in the east as a morning star which is visible before sunrise. By February 22 it will be seen easily in the dawn, when its astronomical magnitude is minus 4.1, extremely bright.

Jupiter is the brightest object (save the moon) left in the evening sky. As shown on the accompanying maps, which depict the skies of 10 p. m. at the opening of the month and an hour earlier in the middle, it stands to the southwest in the constellation of Taurus. Just below is Aldebaran, marking the eye of the bull which this figure represents. The magnitude of Jupiter is minus 2. It even exceeds that of Sirius (minus 1.6), the most brilliant star, which is in the south and lower in the sky, in Canis Major, the great dog.

Saturn, fainter though still equal to a first magnitude star, is lower and farther west, near the little cluster of stars called the Pleiades. Mars, at the beginning of the month, is lower and fainter. It is in the constellation of Aries, the ram, and its magnitude is 1. As an example of the motion of the planets referred to above, it will draw near to Saturn, passing that planet on the evening of the 23rd.

Distinct from the planets, which shine by the reflected light of the sun, are the stars; distant glowing suns themselves. Their brilliant mid-winter display is now

seen in full glory. A good way to find them is by starting with the three stars marking Orion's belt. They are about halfway between Aldebaran and Sirius, which we already mentioned. Above the belt of the warrior are his shoulders, marked by Betelgeuse and Bellatrix. Below is Rigel, in one of his legs.

Canis Major is one of his dogs. The other, higher in the sky, is Canis Minor, in which first magnitude Procyon shines. Still higher are the twins, Gemini, with Castor and Pollux. Not far away, to the northwest of the zenith, is Capella, of Auriga, the charioteer.

Beside these orbs in Orion and his neighbors one other of the first magnitude is seen. This is Regulus, in Leo, the lion, which is in the eastern sky. The star is in a hook-shaped group, the sickle, where it marks the end of the handle.

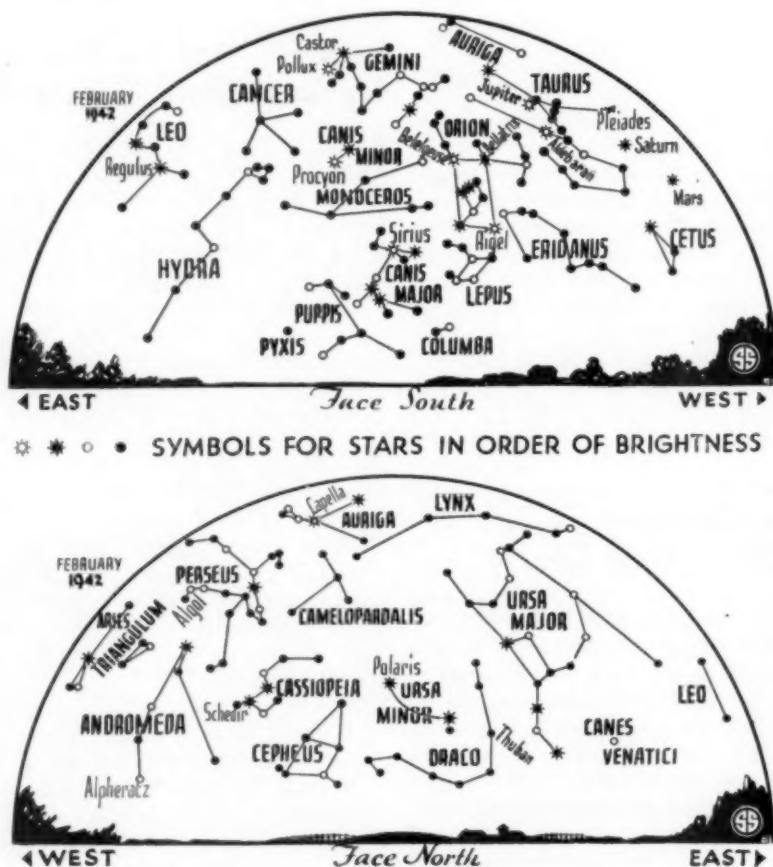
In the northern sky, the great dipper,

part of Ursa Major, the big bear, is swinging high into the northeast. At the top of this figure, as it is now seen, are the two "pointers," the stars which indicate the direction of Polaris, the pole star. On the opposite side of the pole star is Cassiopeia, shaped like a W resting on the side, its top to the right.

Recently a reader of these articles took me to task for an alleged error. It seems that, as in this one, I referred to Jupiter being in the constellation of Taurus. But this correspondent knew better—he had looked it up in an astrological magazine, and that said Jupiter was in Gemini, the twins.

Apparently it never occurred to this gentleman to look at the sky itself—as I did when I received his letter. I had entertained no doubt as to where it would be, but it was with a feeling of satisfaction that I looked at Taurus that same evening. There was Jupiter, shining just where I had promised it would be.

Perhaps some other readers have been similarly confused. If so, the fault is not



with the sky itself, but with the astrologers, who are really a few thousand years behind the times. If you have ever watched a spinning top, you have noticed that it has another movement in addition to the rapid rotation. This is a "wobbling" motion, in which the axis of the top itself moves around in a circle.

The earth undergoes a similar "wobbling." Every 24 hours it turns on its axis. And every 25,800 years the north pole and the south pole, ends of the axis, swing around in circles. Just now it happens that the star we call Polaris is practically over the north pole, because the axis points in that direction. But this is only temporary. When the pyramids were built in Egypt a star called Thuban, in Draco, the dragon, was the pole star. In the year 14,000 Vega, in Lyra, the lyre, a star now seen in the summer far from the pole, will have that place of honor.

This movement, called the "precession of the equinoxes," also causes the constellations along the sun's annual path, the ecliptic, to slip around. A few thousand years ago the sun at the beginning of spring, which was then the beginning of the year, was entering the constellation of Aries, the ram. Because of precession, however, the sun of 1942, at the beginning of spring next month, will be in Pisces, the fishes. A few millennia hence and it will be in Aquarius, the water carrier.

### "Signs" of the Zodiac

The twelve constellations along the ecliptic make up the zodiac, and the sun, moon and planets are always in this path. They have different areas but, for convenience, the early astrologers, who supposed they could predict the future from the movement of the planets, divided the zodiac into twelve "signs," each the same size. The names of the signs were the same as the corresponding constellations.

But now precession has thrown this system awry. The astrologers of today still use the signs, and ignore the constellations, which are where the stars really are. Taurus is now in the "sign" of Gemini, but it is in the constellation of Taurus. Mars is in the constellation of Aries, but the sign of Taurus, and so on.

This, by the way is one of many factors which show to students of the stars the ridiculous nature of the astrological superstition, and have led all astronomers to reject it completely. For surely if there were any effect caused by the extremely distant background which a planet happened to have as seen from the earth, it

should certainly be the place where the stars are—not the direction they happened to have several thousand years ago!

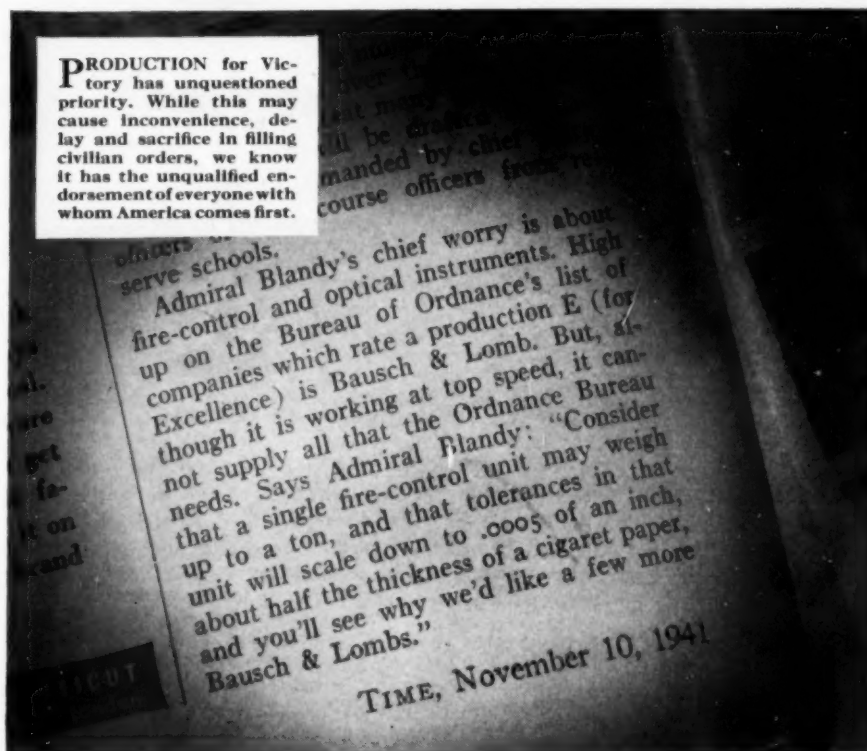
### Celestial Time Table for February

Sunday, February 1, 4:12 a.m., Full moon. Monday, February 2, Noon, Venus between sun and earth, and closest to earth for 1942, distance 25,110,000 miles. Thursday, February 5, 8:00 a.m., Jupiter stationery in its motion among the stars—changes from "retrograde" movement to the west to "direct" motion to east. Sunday, February 8, 9:52 a.m., Moon in last quarter. Monday, February 9, 6:00 p.m., Mercury be-

tween earth and sun. Wednesday February 11, 12:25 a.m., Algal at minimum; 7:00 a.m., Moon nearest; distance 228,600 miles. Friday, February 13, 6:37 p.m., Moon passes Venus; 9:15 p.m., Algal at minimum. Sunday, February 15, 5:02 a.m., New moon. Monday, February 16, 6:04 p.m., Algal at minimum. Saturday, February 21, 7:05 p.m., Moon passes Mars; 10:03 p.m. Moon passes Saturn. Sunday, February 22, 10:40 p.m., Moon in first quarter. Monday, February 23, 9:00 a.m., Moon farthest, distance 251,300 miles; 1:36 p.m., Moon passes Jupiter; 9:00 p.m., Mars passes Saturn.

Eastern standard time throughout. Add one hour to the times shown here after Feb. 9, 2 a.m., to conform with new time.

*Science News Letter, January 31, 1942*



## Why Bausch & Lomb?

THE ability of Bausch & Lomb to produce the highly specialized optical instruments needed by the armed forces of the United States was not born of the present emergency. It has been acquired over eighty-nine years of research and unbroken experience.

Today the abilities and facilities and accumulated experience of Bausch & Lomb are being directed in their entirety to filling the needs of Production for Victory. Needed immediately are the instruments of which Admiral Blandy speaks—the rangefinders, binoculars, aerial height finders, and photographic lenses.

Vital as these are, there are others

equally essential which Admiral Blandy did not mention. Among these are the spectrographic and metallographic equipments used in the analysis and quality control of cartridge cases and armor plate, the contour projectors and the tool-makers microscopes for the fine measurements upon which mass production of tanks and airplanes depends. To help maintain health and efficiency, military and civilian, there are microscopes, diagnostic instruments and spectacles.

**BAUSCH & LOMB**  
OPTICAL CO. • ROCHESTER, NEW YORK  
ESTABLISHED 1853

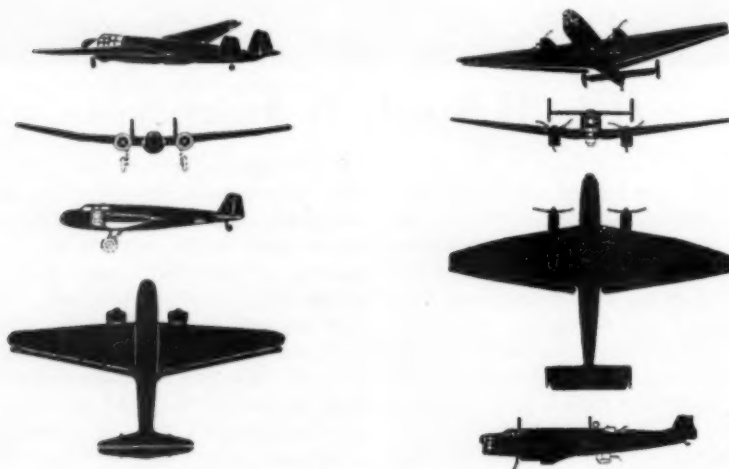
AN AMERICAN SCIENTIFIC INSTITUTION PRODUCING OPTICAL GLASS AND INSTRUMENTS FOR NATIONAL DEFENSE, EDUCATION, RESEARCH, INDUSTRY AND EYESIGHT CORRECTION





#### FLYING IN FAR EAST

The silhouettes at the left show the Japanese "Karigane" which means wild goose, their Type 98. This low-wing monoplane with the single rotary engine is, according to British sources, the Japanese edition of the U. S. Northrop A-17, official U. S. Army Air Corps silhouettes of which are shown at the right. Note the greater taper of the wings on the Japanese plane and the much greater dihedral on the American. The tails differ in shape conspicuously.



#### TWIN TAILS

Here is a long twin-tail Japanese monoplane (left) which is all too familiar to the Allies in the Far East shown beside the German Junkers 86 from which it is said to be copied. Can you pick out the differences? Note particularly the position of the fins, widely spaced, at the very extremes of the rudder on the German model. Note also the German's taper of the fuselage.

## RADIO

Saturday, February 7, 1:30 p.m., EST

On "Adventures in Science," with Watson Davis, director of Science Service, over Columbia Broadcasting System.

Dr. William D. Coolidge, vice president and director of research of the General Electric Company and member of the National Inventors Council, will discuss the way inventions can aid in the war.

Listen in each Saturday.

Tuesday, February 3, 10:15 p.m., EST

Science Clubs of America programs over WRUL, Boston, on 6.04 and 11.73 megacycles.

One in a series of regular periods over this short wave station to serve science clubs, particularly in high schools, throughout the Americas. Have your science group listen in at this time.

## From Page 71

then catapult launched from the mother ship "Schwabenland" at its only stop for refueling. Or it might be the four-engine Blohm and Voss, which made more than 100 Atlantic crossings just before the war. This seaplane is easily distinguished by its inverted gull wing and unusual elevated twin tail with a single flipper.

Science News Letter, January 31, 1942

#### POPULATION

### Allies' Fighting-Age Men Outnumber Axis' 2 to 1

THE United States and its Allies have a two-to-one chance of victory on the basis of manpower, according to an estimate of war-age males in the principal nations at war, by the U. S. Bureau of the Census.

By making fighters of all males between the ages of 18 and 35, the principal belligerents would be able to put 85,203,000 men in the field, not including China, India and the Netherlands Indies. Of this grand total, the Bureau states, 56,643,000 would serve under Allied flags, and 28,560,000 under Axis flags.

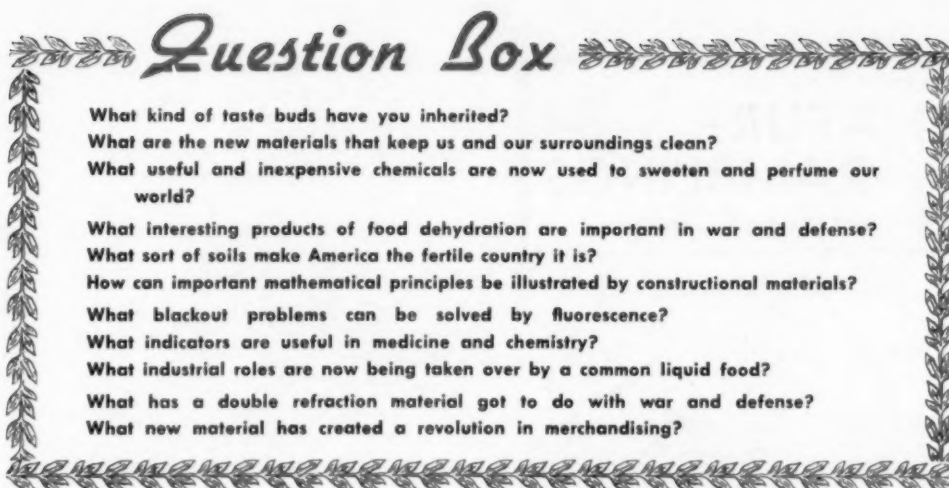
Science News Letter, January 31, 1942

## Languages Made *easy* By Linguaphone

Speak SPANISH, PORTUGUESE, FRENCH—or any of 29 languages—in an amazingly short time by the simplified, direct Linguaphone conversational method. In your own home listen to the voices of native teachers who lead you by easy steps to speak, read and write the language of your choice. Endorsed by the foremost language teachers. Used by a million home-study students. Send for FREE Book

LINGUAPHONE INSTITUTE  
31 R.C.A. Building New York City

**YOU TASTE→**  
**SMELL→**  
**FEEL→**  
**SEE→**



## Question Box

What kind of taste buds have you inherited?  
 What are the new materials that keep us and our surroundings clean?  
 What useful and inexpensive chemicals are now used to sweeten and perfume our world?  
 What interesting products of food dehydration are important in war and defense?  
 What sort of soils make America the fertile country it is?  
 How can important mathematical principles be illustrated by constructional materials?  
 What blackout problems can be solved by fluorescence?  
 What indicators are useful in medicine and chemistry?  
 What industrial roles are now being taken over by a common liquid food?  
 What has a double refraction material got to do with war and defense?  
 What new material has created a revolution in merchandising?

# SCIENCE SURPRISES...

## WHO are the Members of this group?

80% of the members receiving THINGS of science during this year were members last year.

### INDIVIDUALS

One in every nine members is a doctor. Others are husbands and wives jointly, engineers, students, army and navy officers, psychiatrists, bankers, ministers, inventors, newspaper men, local, state and national government officials, and many other individuals whose line of work we do not know.

### INSTITUTIONS

Organizations such as hospitals, military and civil, scientific associations, museums, public libraries, laboratories, institutions for the blind and deaf, are members.

### BUSINESSES

Business executives are members in great numbers. Some of the materials they produce are: Armament, explosives, machinery, tools, communications, lumber, food products, airplanes and parts, chemicals, oil refining, electrical equipment, telephones, bags, distilling, sugar products, asbestos, chain and cable, creosote, crayon, paper, printing machinery, abrasives, steel, medicines, brewing, mining, textiles, dairy products, die-casting. They were members last year. They are members this year.

### SCHOOLS

One in every four members is a high school, parochial school, military school, industrial or technical school, a college or university, public or private. Many members are teachers in such schools.

### MESSAGE TO SCHOOLS

In addition to a clear explanation of the material in each unit of THINGS, we supply a museum-style legend card of bristol board for use in a laboratory display cabinet.

A LITTLE OVER A YEAR AGO, "THINGS of science" was born. It was and is operated without profit for a group of friends of science. Each month the members receive a packet, a big envelope, or a mailing carton of scientific objects—unusual, intriguing, surprising, informative.

These materials and the explanations which accompany them enable the members each month to *see, feel, smell, taste*, and otherwise *experiment with* actual objects which have come from the research and continuous questing of the brains of America and the world.

In the QUESTION BOX at the top of this page are some 1942 questions. THINGS of science that will answer questions like these and many others are now being assembled by the Staff. It is planned in forthcoming months to issue units that will contain science objects, explanations, experiment outlines and descriptive cards on such subjects as TASTE, DETERGENTS, SYNTHETIC FLAVORS, CONCENTRATED FOODS, SOILS, MATHEMATICS, FLUORESCENCE, INDICATORS, MILK PRODUCTS, CALCITE, TRANSPARENT PACKAGING, for example.

The receipt of a unit of THINGS of science each month will help make your reading and conversation on science subjects more vivid. There is no better way to understanding than through the senses. Membership in THINGS of science offers you this opportunity.

See in the column at the left what we discovered when we examined the list of people who *were* members in 1941 and *renewed their memberships for 1942*. They found THINGS of science unusual, intriguing, surprising, informative. So they are continuing their membership for another year.

This organization is sponsored by Science Service, the non-profit institution for the dissemination of scientific knowledge. You may enter your membership for six months for \$2, or for one year for \$4, by sending in the Application Coupon below.

It is difficult for the Staff to get together, under present conditions of scarcity, many of the objects of science the members receive. But the Staff has been forehanded. Members enrolling now can be assured of receiving their monthly units of THINGS of science each month as long ahead as one year.

We invite you therefore to become a member of this unusual group while you can, sending in your Application coupon now.

## MAIL THIS APPLICATION

To *Things* of science

Science Service Building  
 1719 N Street, N.W., Washington, D. C.

I hereby apply for Membership in the science group organized to receive THINGS of science, one unit to be dispatched to me each month, all postage charges prepaid, for one year, \$4 ☐  
 for six months, \$2 ☐

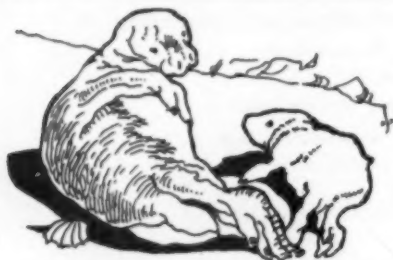
☐ \$\_\_\_\_\_ is enclosed OR ☐ Send bill.

Name \_\_\_\_\_

PLEASE WRITE PLAINLY

Mailing Address \_\_\_\_\_

City & State \_\_\_\_\_



### An Oppressed People

**E**NDANGERED animal species, as well as conquered and enslaved peoples, must look to American might as their hope of liberation and survival. An outstanding example is the great fur seal herd of the Pribilof islands.

Last fall, before the American-Japanese crisis deepened suddenly into war, the international treaty protecting these valuable animals and insuring an equitable distribution of the pelts taken from surplus young males expired. Japan served notice of non-intention to renew, which in effect destroyed the treaty entirely. The Japanese government alleged that the seals were feeding destructively on fish in Japanese waters—something

for which scientists of other nationalities could not find the slightest trace of evidence.

Since the Pribilof islands are unquestioned American territory, we could have forcibly prevented any Japanese sealers from landing there during the breeding time next summer, even if war had not broken out. We shall probably do that now, to the further extent of sinking or capturing any Japanese craft seen in the neighborhood.

However, even that would not have insured the safety of the seals. After the pups are born and have learned how to swim, the herd takes to sea again, migrating southward for the winter, remaining permanently in the water. It used to be the practice of sealers to follow the migrating herd, killing the animals in the water. Elimination of pelagic sealing, as this is called, was one of the main objectives of the now defunct treaty.

There is no question whatever that the Japs will follow the herd if they are able—perhaps even shell or bomb the breeding area next summer just to damage and spite this country, if they are masters of the North Pacific. Certainly if Japan wins the war the seal herd hasn't a ghost of a chance, for the Japanese have long been notorious for their disregard of even the elements of conservation. To save the seals, we must win the war.

*Science News Letter, January 31, 1942*



## SCIENCE CLUBS OF AMERICA

**SAN DIEGO, Calif.**—Chi Eta Mu, a club formed at the Hoover High School, is hinging most of its activities upon war work and national defense. At present, members are taking first aid courses under the sponsorship of L. Sorkness, head of the science department.

Members of Science clubs can contribute vitally to America's war needs. Because of their training and particularly because of their keen natural interest in scientific subjects club members are capable of performing many of the duties which civilian defense members will be expected to carry on in event of necessity.

Science clubs on the west coast were more alert to impending danger because they took an earlier interest in defense activities than clubs in other parts of this country. However, it is gratifying to know that science clubs at last have recognized the role they can play in America's new production.

**CLEVELAND, Ohio**—Eleanor Welsh, President of the Nieuwland Science Club of Notre Dame Academy, writes: "The outstanding event of the year was our very successful Science Night. We still get favorable comments from our past visitors." Club members prepare exhibits on dyes, paints, plastics, crystals, and conduct experiments with cosmetics, colloidal chemistry and the chemistry of kitchen materials. They use "Things of Science" units for study and experimentation. They have guest speakers, educational tours, and exhibits of photographs. They hold weekly meetings, annual parties, do the photographic work for the school annual and prepare auditorium programs. Sister Mary Carmellette, S.N.D., chemistry teacher, sponsors this club which is also affiliated with the Ohio Junior Academy of Science.

**MALDEN, Mass.**—Lincoln Junior High School has a compulsory club program. Students are expected to attend meetings during regular school hours and teachers must participate. Members of the club sponsored by Thomas H. Thomson, science teacher, conduct experiments in botany, chemistry and physics, take trips to nearby factories, and museums, and are now preparing for a science exhibit to be held in the spring.

**ROCHESTER, N. Y.**—The Science Club of Benjamin Franklin Junior-Senior High School is divided into three groups (each directed by a teacher) embracing the fields of biology, physics and chemistry. Among these groups there is further specialization: Some members working on chemical warfare, anatomy and microscopy; others trying to solve problems in the fields of radio, electricity and genetics. The club is sponsored by Robert H. Smith, biology teacher.

**RACINE, Wis.**—Each member of the Washington Park High School Science Club sponsored by vice-principal A. B. Close, works on a semester project which later is placed on exhibition. The club also conducts laboratory experiments, makes valuable charts, compiles data and carries on experiments with mice and guinea pigs.

*Science News Letter, January 31, 1942*

# Clip and mail this Coupon

To SCIENCE CLUBS OF AMERICA, 1719 N St., N. W., Washington, D. C.

- ☐ Send me information on organizing a science club.  
☐ Enroll me as an associate of Science Clubs of America. 25 cents is enclosed.

To SCIENCE NEWS LETTER, 1719 N St., N. W., Washington, D. C.

- ☐ Start my subscription to SCIENCE NEWS LETTER for ☐ 1 year, \$5  
☐ Renew ☐ 2 years, \$7  
 (No extra postage to anywhere in the world)

To THINGS of Science, 1719 N St., N. W., Washington, D. C.

- ☐ Enter my membership in THINGS for ☐ 6 months, \$2  
☐ Renew ☐ 1 year, \$4

Name \_\_\_\_\_

Street  
Address \_\_\_\_\_

City and  
State \_\_\_\_\_

## Don't Delay

getting that **new book** you want to read. SCIENCE NEWS LETTER will gladly obtain for you any American book or magazine in print. Send check or money order covering regular retail price (\$5 if price is unknown, change to be returned) and we will pay postage in the United States. When publications are free, send 10c for handling. Address:

Book Department

SCIENCE NEWS LETTER

1719 N St., N. W. Washington, D. C.



## New Machines And Gadgets

### Novel Things for Better Living

How close to the curb is the car you are trying to park? About the only way you can tell is to open the door on the right side and look out—very inconvenient when someone is occupying the righthand seat. The difficulty is remedied by a parking mirror that has been recently patented. It is a cylindrical mirror just outside of and over the right-hand door, giving the driver a view of objects adjacent to that side of the car. In one form of the invention, the device is clamped to the door hinge, thus avoiding boring any holes in the car.

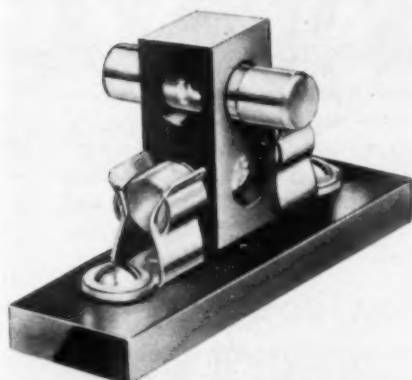
**"Fill 'er up!"** And the filling station attendant does and perhaps spills half a gallon on the ground. This wastage of gasoline can be avoided by use of a new inexpensive device. The operator feels a throb in the valve handle when the tank is full.

The small trickle of water that issues from a faucet on the top floor when several persons on the floors below are using the water is very exasperating. The National Bureau of Standards in Washington has issued a bulletin showing how this can be avoided by proper designing of the pipe sizes. In the average small home the plumber just chooses the sizes by guess work, often using the same size throughout. The bulletin also tells the best materials to use in places where the water has a corrosive or caking action.

Soldering wires together to make a good electric connection will become mere child's play to even the most unhandy handicraftsman with use of a new little device that is really different. Just twist the ends of the wires together and slip the device over them. This is a little nugget of the proper mixture of solder and flux enclosed in a heat generating shell. Touch a match to it and it all burns up, leaving the wires neatly soldered.

Mud houses may solve the problem of low-cost housing in some parts of the country. Now, don't be shocked. California Missions, built more than two centuries ago of adobe bricks, which are simply mud and clay mixed with straw and dried in the sun, are still standing and in good condition. Adobe is still an important building material in the Southwest. Besides, we have now improved forms of earth materials, such as bitudobe, terracrete, etc. The Bureau of Standards has tested a number of these for strength, heat insulation and water permeability, and has recently issued a report.

Changing a fuse is almost a pleasure with the device shown in the illustration. The crosswise fuse is a spare and



serves also as a handle by which the whole thing can be pulled out, when the operating fuse has blown. The device is then turned over and the spare fuse brought into circuit. The burnt fuse comes out on top where it can be replaced by a fresh one.

A hair clipper on the vacuum cleaner principle is the subject of a recent patent. The bag for receiving the hair, sucked from the clipper through a tube, is hung from the barber's shoulder by means of a strap.

Lumps of sugar individually wrapped insure to the consumer a sanitary and dust-free product. But it is some little task and takes time to get the wrappers off. This inconvenience is done away with by a new form of wrapper that has lately been patented. Two lumps are included in one package and the paper is perforated all around where the two lumps meet. A little projecting tab may be grasped and the two lumps pulled apart with one quick motion.

If you want more information on the new things described here, send a three-cent stamp to Science News Letter, 1719 N. St. N. W., Washington, D. C., and ask for Gadget Bulletin 89.

Science News Letter, January 31, 1942

#### GENERAL SCIENCE

### Scientific Valedictorians In High School of Science

WHEN Bertrand Stolzer and Eugene Plofker explained and demonstrated "electric eyes" or photoelectric cells from the graduation platform of Bronx High School of Science on Tuesday evening, Jan. 27, they turned into a tradition the novel idea of having "scientific valedictorians."

This was the second commencement of the unusual High School of Science, with its boys all interested primarily in science and engineering careers. The photoelectric cells and some of the apparatus used in the demonstration were built in the shops and laboratories of the school.

Science News Letter, January 31, 1942

## Use the Optical Disc for Polarization Experiments with this New Polaroid\* Kit



With this inexpensive new kit as an accessory, the Optical Disc may be used for showing classes in elementary science and physics the principles of polarized light now so important in everyday life. The kit contains one Polaroid J-Filter, a double-refracting disc, metal V-block holder, strip of black glass, a strip of Polaroid J-Glass, viewing screen, all of which attach to the face of the disc in the usual manner. Also: 48-page text and instruction manual.

**Price: Optical Disc Kit,  
No. 430, \$7.50**

For complete catalog write your laboratory supply house or Division 21

## POLAROID Corporation

730 Main Street Cambridge, Mass.



\* T. M. Reg. U. S. Pat. Off.

# •First Glances at New Books

## MEDICINE

**IMMUNIZATION TO TYPHOID FEVER**—Research Laboratories of the Army Medical School, Washington, D. C.—*Johns Hopkins Press*, 276 p., \$2.50. A detailed summary, in technical terms for public health and other scientists, of our Army, Navy and Civilian Conservation Corps' experience in the prevention of typhoid fever. Emphasis is given to the influence of the *E. typhosa's* antigenic structure and other biological characters on the production of protective antibodies in the blood of immunized persons. Merits of a single small dose of vaccine for reimmunization as compared with three doses are discussed.

*Science News Letter, January 31, 1942*

## ZOOLOGY

**MAMMALIAN STRUCTURE: Atlas and Laboratory Manual of Cat Anatomy**—Charles J. Wideman—*Loyola Univ. Press*, 60 p., \$1.20. Laboratory directions for the principal dissection in a general zoology course, with clear, diagrammatic line illustrations.

*Science News Letter, January 31, 1942*

## ZOOLOGY

**RECORDS OF LARGE FRESH-WATER MUSSELS**—Fritz Haas—*Field Museum of Natural History*, 10 p., 15c. Authenticated "whoppers" among what most of us would call clamshells.

*Science News Letter, January 31, 1942*

## GEOLOGY—TECHNOLOGY

**HANDBOOK OF MICA**—Ramani Ranjan Chowdhury—*Chemical Pub. Co.*, 340 p., \$6. A comprehensive reference book on the mining, processing and uses of this interesting mineral, more important than ever with the spread of the war, which cannot be waged without mica. The author is a specialist on the subject, in India, the land whose importance as the chief world source of mica makes it an even greater prize for this mineral than all of its fabled gold and gems.

*Science News Letter, January 31, 1942*

## NATURAL HISTORY

**NATURAL HISTORY AND THE AMERICAN MIND**—William Martin Smallwood and Mabel Sarah Coon Smallwood—*Columbia Univ. Press*, 445 p., illus., \$4.25. An historical treatise, examining the part played by naturalists in the early days of this country, especially the effects of their findings, and philosophizing on contemporary and later thought. While

the colonists and early travelers brought with them a basic point of view and many preconceptions, it was inevitable that contacts with the many strange animals, plants and minerals they found in the New World would work sharp and invigorating changes. These are well traced by the authors. A valuable feature of this book is the 69-page bibliography.

*Science News Letter, January 31, 1942*

## NAVAL SCIENCE

**FIGHTING SHIPS OF THE U. S. A.**—Victor F. Blakeslee—*Random House*, 76 p., illus., \$1. A popular account (but written by a Navy man, so that it should be accurate) of the ships of our fleet, their organization, duties and operations. There are many vivid illustrations, both in color and single-tone.

*Science News Letter, January 31, 1942*

## AERONAUTICS

**AIRFRAMES, Part 2**—E. Molloy and E. W. Knott, eds.—*Chemical Pub. Co.*, 132 p., illus., \$2.50. This volume is devoted mainly to two types of British airframes, the "Luton" and the Westland "Lysander I." The former is a civil, the latter a reconnaissance plane. The operations of rigging and maintaining these planes are described in detail.

*Science News Letter, January 31, 1942*

## HERPETOLOGY

**FIELD BOOK OF SNAKES OF THE UNITED STATES AND CANADA**—Karl P. Schmidt and D. Dwight Davis—*Putnam*, 365 p., illus., \$3.50. An exceedingly valuable addition to the well-known Putnam field book series. In addition to workable analytical keys and good descriptions in plain English, there are very clear line illustrations of characters critical in determination of species. This book automatically becomes a "must" item for all zoology department libraries, as well as for all persons doing field work in zoology on their own.

*Science News Letter, January 31, 1942*

## ARCHAEOLOGY

**EXCAVATIONS IN THE FT. LIBERTE REGION, HAITI**—Froelich G. Rainey—*Culture of the Ft. LIBERTE REGION, HAITI*—Irving Rouse—*Yale Univ. Press*, 196 p., 35 pl., \$3.50. Describes archaeological study of 11 Indian sites in north Haiti where refuse heaps contain implements of flint, pottery and shell.

*Science News Letter, January 31, 1942*

## NATIONAL DEFENSE

**CIVIL DEFENSE, A Practical Manual** Presenting with Working Drawings the Methods Required for Adequate Protection Against Aerial Attack (3d ed.)—C. W. Glover—*Chemical Pub. Co.*, 794 p., illus., \$16.50. First published in England in 1938, this very complete compilation of material on civil defense has been twice revised to meet British—and now American—war conditions.

*Science News Letter, January 31, 1942*

## MEDICINE

**BEHIND THE MASK OF MEDICINE**—Miles Atkinson—*Scribner's*, 348 p., \$3. A doctor takes his patients aside and explains some of the problems of medicine in their own language. Such problems as euthanasia, excesses in surgery, socialized medicine and medical ethics are explained frankly. Readers will conclude this book with a sounder understanding of physician-patient cooperation.

*Science News Letter, January 31, 1942*

## BIOGRAPHY

**GREAT MEN AND WOMEN OF POLAND**—Stephen P. Mizwa, ed.—*Macmillan*, 397 p., \$4. A hall of fame of Polish men and women over a period of a thousand years, with science represented by Mme. Curie, of radium fame, Copernicus, famous astronomer, and Zygmunt Wroblewski and Karol Olszewski, known as the Siamese twins of Polish science, who worked with low temperatures and oxygen liquefaction.

*Science News Letter, January 31, 1942*

## ORNITHOLOGY

**AMERICAN WATER BIRDS, Also Hawks, Owls and Game Birds**—Maitland A. Edey—*Random House*, 72 p., illus., \$1. Since almost half the pages consist of Fues color plates from the New York State Museum, this book is an unusually good dollar's worth of ornithology.

*Science News Letter, January 31, 1942*

## PALEONTOLOGY

**THE UPPER ORDOVICIAN FAUNA OF FROBISHER BAY, BAFFIN LAND**—Sharat Kumar Roy—*Field Museum of Natural History*, 212 p., illus., \$3.50. A monograph of an important paleozoic fauna from an inaccessible part of the world, which will be welcomed by paleontologists interested in the groups described, as well as by students of historical geology.

*Science News Letter, January 31, 1942*